## ABTRACT OF DISCLOSURE

The present invention discloses a bidirectional add/drop multiplexer (BADM) and a bidirectional add/drop amplifier (BADA) module which add/drop counter-propagating signals in different wavelength bands. The mid-stage device in the BADM and the BADA module is shared by the counter-propagating signals.

The BADM according to the present invention comprises (1) two wavelength selective couplers (WSC1, WSC2) with an input port (d1 or d2), an output port (f1 or f2), and a common port (e1 or e2). (2) Two optical isolators (Iso1, Iso2) with an input port (g1 or g2) and an output port (h1 or h2). (3) Two optical circulators (Cir1, Cir2) with an input port (a1 or a2), an output port (c1 or c2) and a common port (b1 or b2). (4) A bidirectional multiplexing/demultiplexing means with N input/output ports at its both sides. And (5) a mid-stage device composed of a means for compensating the chromatic dispersion of the optical fibers, a means for flattening the spectral response of the optical amplifiers, a means for suppressing the accumulation the amplified spontaneous emission noise or a combination of these means.

The BADA module according to the present

invention comprises an above-described BADM and two bidirectional optical amplifiers (BOA1, BOA2). It can further comprises two unidirectional optical amplifiers (UOA1, UOA2).